Forecast-based financing

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Abstract

While there is immense support for the concept of "early warning early action" around the world, predictable extreme weather and climate events continue to wreak havoc every year. Recognizing that much more can be done for those events that have a reasonable level of predictability in the window of time between a forecast and a potential extreme event, humanitarians have developed Forecast-based Financing (FbF) systems, which guarantee funding for forecast-based actions. In such a system, forecast "triggers" are defined in advance, and specific actions are pre-approved to be funded immediately when the forecast trigger shows a high enough probability of the extreme event.

This thesis covers the development and rapid growth of FbF in the humanitarian sector, beginning with the first Red Cross pilots in 2015, and concluding with a summary of the most challenging ethical decisions facing FbF as it is now implemented at scale around the world.

We begin with a theoretical framework from 2015, written before any of the FbF pilots, explaining the rationale and expectations for the development of an FbF system. Following the FbF projects that have grown to more than 20 countries, the main four chapters tackle operational questions from the ground on how to connect forecasts to disasters. This includes an analysis of seasonal rainfall forecasts in Africa, to estimate how much early indication they can give for both floods and droughts. Looking globally, we analyze where heatwaves and coldwaves are predictable before they happen, and what type of early actions can be taken in which regions. In the context of one pilot project in Uganda, we verify a forecast with limited data, to set triggers for action. We conclude with a review of FbF in the context of humanitarian principles and decision making.

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